

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-24 are presently active in this application, Claims 1, 8 and 15 having been amended and Claims 21-24 added by the present amendment.

In the outstanding Official Action Claims 1, 7-9, 14 and 15 were rejected under 35 USC §103(a) as being unpatentable over Yokota et al (5,909,206) in view of Kuriki (5,250,928). Claims 2, 9 and 16 were rejected under 35 USC §103(a) as being unpatentable over Yokota et al in view of Kuriki and further in view of Fujitaka (5,495,267). Claims 3-6, 10-12, 17-20 were objected to as being dependent upon a rejected base claim, but indicated as being allowable if rewritten in independent form.

Applicants acknowledge with appreciation the indication of allowable subject matter. In response to this indication, new Claims 21-24 corresponding to Claims 3, 10 and 17 rewritten in independent form have been submitted herewith. Accordingly, these new claims are believed to be in condition for allowance.

In response to outstanding grounds for rejection for rejection, independent Claims 1, 8 and 15 have been amended to state a further feature of the Applicants' invention with respect to scrolling control implemented by the incorporated RAM or memory of the present invention. Support for this feature added to the amended claims is provided at page 8, lines 19 to 24, page 9, lines 10 to 18, and Fig. 1 of Applicants' disclosure, and therefore no new matter has been added. In view of these changes, Applicants respectfully submit that the amended claims patentably define over the cited Yokota, Kuriki and Fujitaka references, for the reasons next discussed.

In particular, with regard to the claims 1, 8 and 15, the outstanding Office Action contends that Yokota discloses: a display RAM 4 to store the display data (col. 3, lines 24-26); a latch shift register (scroll shift register 11 comprises a latch circuit 22) to receive the display data from RAM 4 if the display screen is intended to be scrolled in a horizontal direction and to shift the read out data depending on the scrolling direction (col. 10, lines 32-60); and an access control circuit (the latch circuit) to read out the display data if the display screen is scrolled in a horizontal direction (col. 10, lines 54-60), and write back the display data shift into an original region in RAM (col. 18, lines 26-50). The outstanding Office Action also contends that Kuriki teaches holding of new data in synchronism with the vertical sync signal (col. 6, lines 54-57); and if the display data is scrolled in a vertical direction, to write back the display data held by the latch shift register into a region moved by the amount of scroll from the original region (col. 6, line 54 to col. 7 line 2).

However, Applicants respectfully point out that the claimed access control circuit is in now way suggested by the scrolling control means of Yokota disclosed at col. 18, lines 26-50 of the Yokota patent, since Yokota fails to teach or suggest an access control circuit that again writes back, into the RAM incorporated in the display driver, the display data shifted or held by the latch shift register.

In more detail, amended Claims 1, 8 and 15 define the claimed RAM incorporated display driver as including a RAM configured to store the display data to be displayed on the display screen; a latch shift register; and an access control circuit. As stated in the amended Claims 1, 8 and 15 regarding scrolling control, when scrolling in a horizontal direction, display data is read out from RAM incorporated in display driver, sent to the latch shift register, and shifted depending on the scrolling direction in the latch shift register, then shifted display data is written back again into the RAM at the original region from which the

display data was read out. On the other hand, when scrolling in a vertical direction, display data is read out from RAM, sent to the latch shift register, and held (latched) in the latch shift register, then latched display data is written back again into the RAM at a region moved by the amount of scroll. Then, written back display data is supplied to the display screen.

The thus described claimed configuration enables a CPU configured outside of the display driver to be free from scrolling control of display data, so that the load on the CPU for driving the display screen can be dramatically reduced.

In contrast to the claimed invention, Yokota (col. 3, lines 24-26, col. 10, lines 54-60, col. 18, lines 26-50), Kuriki (col. 6, lines 54-57, col. 6, line 54 to col. 7, line 2), and Fujitaka completely fail to disclose the claimed scrolling control operation governed not by the CPU but by the access control circuit provided in the display driver, in which the shifted/latched display data is written back again into the RAM incorporated in the display driver.

On the contrary, Yokota discloses a scrolling control in a horizontal direction by controlling the shift amount in the scroll shift register after transforming read out data from display RAM into serial data through CGROM. Kuriki discloses a scrolling control by changing data address from which the display data is read out from V-RAM based on a graphic command. Moreover, Fujitaka discloses a scrolling control in which displayed data subjected to scrolling on a display screen and displayed data is wiped out from the display screen by a data output control circuit. It is respectfully submitted that none of the cited references teaches or suggests the claimed scrolling control operation governed not by the CPU but by the access control circuit provided in the display driver, in which the shifted/latched display data is written back again into the RAM or memory incorporated in the display driver before being sent to the display screen. In view of this distinction, it is respectfully submitted that the amended claims patentably define over the cited art.

Consequently, in view of the present amendment and in light of the above comments, it is respectfully submitted that the amended claims likewise are in condition for formal allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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